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10/568,313

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EXAMINER

JONES, CHRISTOPHER P

ART UNIT

PAPER NUMBER

4132

NOTIFICATION DATE

DELIVERY MODE

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ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/568,313	Applicant(s) YABU, TOMOHIRO	
	Examiner CHRISTOPHER P. JONES	Art Unit 4132	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 February 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>20060216</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
3. Regarding claims 1-19, it is unclear whether or not the numbers in parentheses are meant to limit their respective elements claimed, to those elements depicted in the drawings.
4. Regarding claim 1, it is unclear what is meant by the phrase "supplies to an indoor space an air stream after the air stream being controlled in its humidity by the adsorptive element". It is unclear whether "an air stream" is referring to "the air stream being controlled in its humidity by the adsorptive element", or whether it is another different air stream being claimed.
5. Regarding claims 2-4, 6, 8, 11, and 17-19, it is unclear whether "a second air stream" is referring to the "second air stream" referred to in claim 1, or whether it is another different air stream being claimed.
6. Regarding claim 3, it is unclear whether or not the phrase "joins the rest of the second air stream" is meant to limit the claim so that a part of the second air stream necessarily does not flow into the auxiliary passageway.

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7. Regarding claim 5, the phrase "the regeneration heater is formed by a heating-heat exchanger of the refrigerant circuit" is indefinite. It is unclear what is meant by the word "formed". It is unclear whether the regeneration heater is part of the refrigerant circuit, or whether they are two distinct objects.

8. Regarding claim 7, the phrase "the regeneration heater and the auxiliary heater are formed by a heating-heat exchanger of the refrigerant circuit" is indefinite. It is unclear what is meant by the word "formed". It is unclear whether the regeneration and auxiliary heaters are part of the refrigerant circuit, or whether they are all distinct objects.

9. Regarding claims 8 and 19, it is unclear whether "a first air stream" is referring to the "first air stream" referred to in claim 1, or whether it is another different air stream being claimed.

10. Regarding claims 8 and 19, the phrase "wherein said humidity control device includes a first adsorptive element and a second adsorptive element" is indefinite. It is unclear whether the "first adsorptive element" and/or "the second adsorptive element" are the "adsorptive element" referred to in claim 1, or whether they are distinct adsorptive elements from the "adsorptive element" referred to in claim 1.

11. Regarding claims 17 and 18, the phrase "a regeneration heater which heats a second air stream prior to its entrance into the humidity control passageway and the auxiliary passageway" is indefinite, and regarding claim 18, the phrase "an auxiliary heater which heats a second air stream after its passage through the auxiliary passageway before the second air stream flows into the humidity control passageway"

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is indefinite. It is unclear whether or not these phrases, in light the phrase “joins the rest of the second air stream” of claim 3, are meant to limit the claims so that all of the second air stream must flow into the auxiliary passageway.

Claim Rejections - 35 USC § 102

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

13. Claims 1-19 are rejected under 35 U.S.C. 102(b) as being anticipated by *Yuji* JPN 2001263729A, see machine translation.

14. Regarding claim 1, *Yuji* discloses a humidity control device which comprises an adsorptive element (claim 1; figure 2, objects 20 and 21) having a humidity control passageway (figure 2, objects 21a and 21b) capable of adsorbing moisture from a first air stream and of releasing moisture to a second air stream (claim 1; paragraph 11) and which supplies to an indoor space an air stream after the air stream being controlled in its humidity by the adsorptive element (paragraphs 22), wherein the adsorptive element is provided with an auxiliary passageway (figures 2, objects 22a and 22b) through which a heating fluid flows when the adsorptive element is regenerated by releasing moisture from the humidity control passageway (paragraph 23).

15. Regarding claim 2, *Yuji* discloses a humidity control device having, during regeneration of the adsorptive element, all of a second air stream prior to its passage

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through the humidity control passageway flow, as a heating fluid, into the auxiliary passageway (paragraphs 6 and 23; figure 1).

16. Regarding claim 3, *Yuji* discloses a humidity control device capable of having a part of a second air stream (paragraph 23, line1), prior to its passage through the humidity control passageway, flow, as a heating fluid, into the auxiliary passageway, join the rest of the second air stream, and pass through the humidity control passageway (Paragraph 23; figures 1 and 2).

17. Regarding claim 4, *Yuji* discloses a humidity control device including a regeneration heater (figure 6, object 36) capable of heating a second air stream prior to its entrance into the humidity control passageway and the auxiliary passageway (paragraph 35).

18. Regarding claim 5, *Yuji* discloses a refrigerant circuit (figure 6, objects 31A and 35) through which a refrigerant is circulated to perform a refrigeration cycle (paragraph 35), and wherein the regeneration heater (figure 6, object 36) is formed by a heating-heat exchanger of the refrigerant circuit (paragraph 35; figure 6, objects 31A, 35, and 36).

19. Regarding claim 6, *Yuji* discloses the humidity control device including a regeneration heater (figure 6, object 36) capable of heating a second air stream prior to its entrance into the humidity control passageway and the auxiliary passageway (figure 6, object 33; paragraph 35), and an auxiliary heater (figure 6, object 34) capable of heating a second air stream after its passage through the auxiliary passageway (paragraph 36; figure 2, objects 22a and 22b; figure 6, object 33) and before the second

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air stream flows into the humidity control passageway (figure 3, objects 21a and 21b, figure 6, object 33).

20. Regarding claim 7, *Yuji* discloses the humidity control device including a refrigerant circuit (figure 6, objects 31A and 35) through which a refrigerant is circulated to perform a refrigeration cycle (paragraph 33), and wherein the regeneration heater and the auxiliary heater are formed by heating-heat exchangers of the refrigerant circuit (paragraph 35; figure 6, objects 31A, 33, 35, and 36).

21. Regarding claim 8, *Yuji* discloses that the humidity control device includes a first adsorptive element (figure 1, object 3) and a second adsorptive element (figure 1, object 4), and is configured so as to perform a batch running operation which alternately switches between (a) a first operation in which moisture in a first air stream is adsorbed in the first adsorptive element while moisture is released to a second air stream in the second adsorptive element and (b) a second operation in which moisture in a first air stream is adsorbed in the second adsorptive element while moisture is released to a second air stream in the first adsorptive element (paragraphs 20-22), and wherein said humidity control device is configured so as to be capable of performing (i) a cooling/adsorption operating mode in which a cooling fluid flows through the auxiliary passageway of the first adsorptive element and (ii) a heating/regeneration operating mode in which a heating fluid flows through the auxiliary passageway of the second adsorptive element (paragraphs 30-32).

22. Regarding claim 9, *Yuji* discloses that the humidity control device is configured so as to be capable of simultaneously performing (i) a cooling/adsorption operating

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mode in which a cooling fluid flows through the auxiliary passageway of the first adsorptive element and (ii) a heating/regeneration operating mode in which a heating fluid flows through the auxiliary passageway of the second adsorptive element (paragraph 36).

23. Regarding claim 10, *Yuji* discloses a humidity control device configured so as to be capable of selectively switching between (i) a cooling/adsorption operating mode in which a cooling fluid flows through the auxiliary passageway of the first adsorptive element and (ii) a heating/regeneration operating mode in which a heating fluid flows through the auxiliary passageway of the second adsorptive element (paragraph 20).

24. Regarding claim 11, *Yuji* discloses that the humidity control device includes a regeneration heater (figure 6, object 36) which heats a second air stream (paragraph 35) prior to its entrance into the humidity control passageway and the auxiliary passageway of an adsorptive element (figure 6, top half of object 33), and a cooler which cools a cooling fluid (paragraph 36; figure 6, object 35) prior to its entrance into the humidity control passageway of the other of the adsorptive elements (figure 6, bottom half of object 33).

25. Regarding claim 12, *Yuji* discloses the humidity control device including a refrigerant circuit (figure 6, objects 31A and 35) through which a refrigerant is circulated to perform a refrigeration cycle (paragraph 36), and wherein the regeneration heater is formed by a heating-heat exchanger of the refrigerant circuit (paragraph 35; figure 6, objects 31A, 35, and 36) and the cooler (figure 6, object 35) is formed by a cooling-heat exchanger of the refrigerant circuit (paragraph 36).

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26. Regarding claim 13, *Yuji* discloses that the humidity control device includes a regeneration heater (figure 6, object 36) which heats a second air stream (paragraph 35) prior to its entrance into the humidity control passageway and the auxiliary passageway of an adsorptive element (figure 6, top half of object 33); an auxiliary heater (figure 6, object 34) capable of heating a second air stream after its passage through the auxiliary passageway (paragraph 36; figure 2, objects 22a and 22b; figure 6, object 33) and before the second air stream flows into the humidity control passageway (figure 3, objects 21a and 21b, figure 6, object 33); and a cooler which cools a cooling fluid (paragraph 36; figure 6, object 35) prior to its entrance into the humidity control passageway of the other of the adsorptive elements (figure 6, bottom half of object 33).

27. Regarding claim 14, *Yuji* discloses that the humidity control device includes a refrigerant circuit (figure 6, objects 31A and 35) through which a refrigerant is circulated to perform a refrigeration cycle (paragraph 36), and wherein the regeneration heater and the auxiliary heater are formed by heating-heat exchangers of the refrigerant circuit (paragraph 35; figure 6, objects 31A, 33, 35, and 36), and the cooler (figure 6, object 35) is formed by a cooling-heat exchanger of the refrigerant circuit (paragraph 36).

28. Regarding claims 15 and 16, *Yuji* discloses that the direction of refrigerant circulation in the refrigerant circuit is reversible, and wherein the direction of refrigerant circulation in the refrigerant circuit is changed in response to switching between adsorptive and regenerative sides in the batch running operation (paragraphs 29 and 32).

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29. Regarding claim 17, *Yuji* discloses a regeneration heater which is capable of heating a second air stream prior to its entrance into the humidity control passageway and the auxiliary passageway (paragraph 23, lines 3-4).

30. Regarding claim 18, *Yuji* discloses the humidity control device including a regeneration heater (figure 6, object 36) capable of heating a second air stream prior to its entrance into the humidity control passageway and the auxiliary passageway (figure 6, object 33; paragraph 35), and an auxiliary heater (figure 6, object 34) capable of heating a second air stream after its passage through the auxiliary passageway (paragraph 36; figure 2, objects 22a and 22b; figure 6, object 33) and before the second air stream flows into the humidity control passageway (figure 3, objects 21a and 21b, figure 6, object 33).

31. Regarding claim 19, *Yuji* discloses that the humidity control device includes a first adsorptive element (figure 1, object 3) and a second adsorptive element (figure 1, object 4), and is configured so as to perform a batch running operation which alternately switches between (a) a first operation in which moisture in a first air stream is adsorbed in the first adsorptive element while moisture is released to a second air stream in the second adsorptive element and (b) a second operation in which moisture in a first air stream is adsorbed in the second adsorptive element while moisture is released to a second air stream in the first adsorptive element (paragraph 22), and wherein said humidity control device is configured so as to be capable of performing (i) a cooling/adsorption operating mode in which a cooling fluid flows through the auxiliary passageway of the first adsorptive element and (ii) a heating/regeneration operating

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mode in which a heating fluid flows through the auxiliary passageway of the second adsorptive element (paragraphs 29-31).

Claim Rejections - 35 USC § 103

32. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

33. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

34. Claims 6, 7, 13, 14, 16, and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by *Yuji* JPN 2001263729A, see machine translation, in view of *Fujimura* JPN 08094124A, see machine translation.

35. Regarding claims 6, 7, 13, 14, 16, and 18, *Yuji* is relied upon as above.

36. In the alternative, if *Yuji* does not explicitly disclose a regeneration heater capable of heating a second air stream prior to its entrance into the humidity control passageway and the auxiliary passageway, in combination with an auxiliary heater capable of heating a second air stream after its passage through the auxiliary

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passageway and before the second air stream flows into the humidity control passageway. Nevertheless, *Fujimura* discloses a humidity control device (see *Fujimura* figures 1 and 3a) with a regeneration heater (see *Fujimura* figures 1 and 3a, object 12) capable of heating a second air stream (see *Fujimura* figure 3a air stream depicted by arrows) prior to its entrance into the humidity control passageway and the auxiliary passageway (see *Fujimura* figures 1 and 3a, objects 2, 2a, and 2b), in combination with an auxiliary heater (see *Fujimura* figures 1 and 3a, object 8) capable of heating a second air stream after its passage through the auxiliary passageway (see *Fujimura* figures 1 and 3a, object 2b) and before the second air stream flows into the humidity control passageway (see *Fujimura* figures 1 and 3a, object 2a), for the purpose of keeping the air stream energized (see *Fujimura* paragraph 19) to enhance dehumidification regeneration of the total heat exchanger (see *Fujimura* paragraph 28).

37. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the humidity control device, of *Yuji*, with the humidity control device with a regeneration heater capable of heating a second air stream prior to its entrance into the humidity control passageway and the auxiliary passageway, in combination with an auxiliary heater capable of heating a second air stream after its passage through the auxiliary passageway and before the second air stream flows into the humidity control passageway, of *Fujimura*, for the purpose of keeping the air stream energized to enhance dehumidification regeneration of the total heat exchanger.

Conclusion

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38. Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHRISTOPHER P. JONES whose telephone number is (571)270-7383. The examiner can normally be reached on Monday - Thursday, 8:00 AM - 5:00 PM.

39. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Lavilla can be reached on (571)272-1539. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

40. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/CPJ/
October 9, 2008

/Alicia Chevalier/
Primary Examiner, Art Unit 1794